Art. XII.—*Contributions to the Flora of Australia. No. 14.*[1]

BY

ALFRED J. EWART, D.Sc., Ph.D., F.L.S.

(Government Botanist and Professor of Botany in Melbourne University);

BERTHA REES

(Government Research Scholar);

AND

BERTHA WOOD, B.Sc.

(With Plates XII.-XIII.)

[Read 9th June, 1910.]

Atriplex patulum, L. var hastata, Gray. (A. hastata L.). (Chenopodiaceae).

H. B. Williamson, Foreshore, Geelong, April, 1910; Railway Reserve, N. Melbourne, J. R. Tovey and C. French, junr., April, 1910.

A. patulum has already been recorded as a naturalised alien, but not this variety, which is still recognised in the Kew Index and in Engler's Pflanzenfamilien as a distinct species, although both Gray and Bentham have shown the necessity of including it with other forms, as varieties of or subspecies of *A. patulum*.

Bupleurum rotundifolium, L. (Umbelliferae). "Hare's ear."

Lower Loddon, R. Thorn, 1882; Huntly, L. Fraser, Nov., 1875; and various Victorian localities; near Sydney (New South Wales); Dr. Woolls, Oct., 1871.

Naturalised as an alien in Victoria, but not previously recorded.

The plant has been by some identified as *B. protractum*, Hoff. and Link. If this species is valid, it is distinguished by

1 No. 13 in vol. xxi., 1910, p. 315, of the Proceedings of this Society.

the stem-leaves being much longer than they are broad instead of nearly circular as in the present specimens, with less than 5 bracts; the number of bracts in the umbels of both forms varies from 3–5, rarely more. The plant is native to the Mediterranean regions, and has hence spread to Europe, Asia, North America and Australia.

BURSARIA SPINOSA, Cav. (Pittosporeae).

Various forms of this pleomorphic species have been described as distinct species at different times, upon variations in the shape and size of the leaves, presence or absence of spines, hairs, size of the adult plant, etc. Such characteristics are, however, precisely those most liable to local adaptive modifications and least reliable as specific distinctions. A careful examination of the 200 odd specimens from all parts of Australia existing at the National Herbarium shows that 3 fairly marked varieties of this species can be recognised, but that even the most marked one (var. *incana*) is connected with the type and with the other varieties by numerous intervening forms. The forms are:—

Bursaria spinosa, Cav. The "type" form is merely what remains when the three varieties are removed. It comes from all parts of Australia, and includes at least 20 intermediate forms. It varies from a shrub to a tree 40 feet high, and is usually without spines.

Var. *incana*. This form has long, narrow more or less pointed leaves up to 3 inches or more in length, with a white tomentum on the under surface. It is commonest in tropical Australia, and the pons are usually rather larger than in the other forms. In the west and south of Australia specimens are found with shorter and broader leaves, but the tomentum still present. (*B. incana*, Lindl.)

Var. *luxurians*. This has also large leaves, but they are shorter, tomentum on the under side. In other respects it is identical with the "type." It appears to be commoner in the S.E. of broader and more obtuse than in var. *incana* and have no Australia, particularly in moist valleys near the sea coast, but also extends as far North as Queensland. It may include the *B. tenuifolia* of Bailey. (Flora of Queensland, p. 72), but no

authentic specimens of that variety have been seen. The "*B. Pantoni*" of W. R. Guilfoyle (Vict. Naturalist, Vol. XVII., 1900, p. 42) is merely a form of *B. spinosa* approaching towards this variety.

Var. *microphylla.* The leaves vary in shape, but are always small, often less than half a centimetre in length. Most of the shrubby, spiny specimens come under this variety, which mainly occurs in New South Wales, Victoria and South Australia, although it also extends as far north as Queensland. A specimen from Stawell (F. M. Reader, 1904) is interesting in having the leaves with the tomentum of var. *incana* on the under sides, but being otherwise identical with var. *microphylla.*

Apparently *Bursaria spinosa* is a plant which has spread over Australia in comparatively recent times, and is in process of adaptive modification into at least three and possibly more distinct species. Since all the connecting links still exist, however, it is not possible to separate these forms into distinct species, and the decision, whether a particular specimen belongs to a variety or the type is often merely a matter of choice.

CENTAUREA NIGRA, L. (Compositae). "Knapweed."

A native of Europe, now growing wild, and sufficiently established to be considered naturalised at Sale, Gippsland, Williamson; Freeburgh, N.E. Victoria, per Department of Agriculture, February, 1910; Terang, C. B. Palmer, March, 1910.

It has suddenly appeared at several localities, probably spread with a batch of impure agricultural seed, and is not likely to die out again. Though useless the plant is not prickly or obnoxious in the same way as is the Star Thistle (*Centaurea calcitrapa.*) It is not, however, an alien to welcome.

CHENOPODIUM RUBRUM, L. (Chenopodiaceae).
"Red Goosefoot."

Railway Reserve, N. Melbourne, May, 1900, C. French, jnr., and J. R. Tovey.

The plant is a native of Europe and of Russian Asia except at the extreme north. It grows on roadsides, rubbish heaps, old manure tips and waste places, and is usually easily recognised by its peculiarity of turning red, first on the stems, and especially when near the sea. In Victoria it has probably been frequently mistaken for *Chenopodium murale*, which is native, and which it resembles externally. The exotic *C. urbicum* L., to which it is closely allied, does not as yet appear to have entered Victoria.

The plant is not poisonous. Its young shoots and leaves have been used as a kind of spinach, and it also has a slight value as a low grade fodder plant, especially for sheep. In cultivated land it readily becomes a troublesome weed if neglected.

CHORIZEMA NERVOSA, T. Moore. (Leguminosae).

Near Cape Arid, West Australia, 1875; Maxwell, West Australia; T. Drummond, No. 23 (not of 6th Coll., possibly of 5th Coll.).

The latter specimen was placed under *Gastrolobium bidens* Meisn., by Mueller, as the type of that species in Australia on the basis of Bentham's reference to No. 23, Drummond's 6th Coll. as *Gastrolobium bidens*. Noting the discrepancy in the description a portion of the type of the true *G. bidens* was obtained from Kew, which proved to be a different plant, and the identification was corrected as above. *Chorizema nervosa* is the No. 25 of Drummond's 5th collection. The present No. 23, may be of the 5th or some other collection, but not of the 6th collection.

EHRHARTA PANICEA, Smith. (Gramineae). (E. erecta, Lam).

Goulburn, Nov., 1904; C. Walter (probably planted as a pasture grass); Domain, South Yarra, J. W. Audas and Colonel Goldstein, March, 1910 (growing wild as a garden escape).

This S. African grass is a perennial with more or less creeping stems. It has a certain value as feed for grazing stock, but only grows well in fairly moist or protected shady localities.

In gardens and cultivated land it would be apt to become a troublesome weed.

ESCHSCHOLTZIA CALIFORNICA, Cham. (Papaveraceae).

Growing wild on the flats along the Loddon at Baringhup. Apparently a garden escape hardly naturalised as yet.
J. M. B. Connor, April, 1910.

GNAPHALIUM PURPUREUM, L. (Compositae) "Purple cud weed."

Near Dimboola, F. M. Reader, August, 1893; Korumburra, H. Crisp, December, 1902; Otway Forest, H. B. Williamson, December, 1903; Gippsland, W. Wallace, November, 1904; Toora, W. Stewart, December, 1907.

This plant has not been hitherto admitted into the census as Victorian owing to the specimens having been classed as a variety of Gnaphalium japonicum. Although they have not the woolly bracts of the original Australian type specimens they have the pappus hairs cohering in a distinct ring at the base, and tally closely with old world specimens. The woolliness of the bracts and the shape of the leaves appear to be variable features.

HALGANIA ERECTA, n. sp., Ewart and Rees,

Victoria Desert Camp, 38, September, 1891, R. Helms.

Small branching shrub about 8in. in height. Stems woody, bearing a glandular viscid scabrescence intermingled with a few rigid appressed hairs of peculiar type, and as in *H. strigosa* attached at the centre, and having two processes extending apically and basally in the same line or at a slight angle. Leaves about $\frac{1}{4}$ in. long, entire when young, usually becoming slightly 3-dentate when older, appressed, sessile, slightly narrowed at the base, margins incurved, whole leaf somewhat concave, under surface bears a number of stiff white hairs similar to those on the stems, also traces of the viscid scabrescence. Flowers stalked apparently solitary and axillary—Calyx—5 sepals, $1\frac{1}{2}$ lines long, linear accuminate bearing short hairs. Petals dark blue rather broad, narrowing to pointed apex,

longer and more accuminate than those of H. strigosa. Stamens with very short filaments, anthers about one line long, each with long straight process about twice as long as anther itself, processes free at tip, much longer than those of H. strigosa. The plant is nearest to *H. strigosa*, Schlect, but is smaller, has stouter and more numerous hairs, much smaller appressed leaves, and longer anther appendages. From *H viscosa*, Spencer Le Moore, it differs in having the strigose indumentum even more strongly developed than in *H. strigosa*, in the shorter and broader leaves, in the solitary stalked flowers and in the anther appendages.

HELIPTERUM SPLENDIDUM, Hemsley, Botanical Magazine. Tab. 7983, 1904 = H. ROSEUM, Benth. var. ALBA (Compositae).

Hemsley's type specimen is a large flowered form of this species agreeing in the anthers, styles, bracts, achenes, pappus, and leaves with the various forms of this somewhat variable species. Plants grown at the Botanical Gardens from seed obtained from Berthoud, in West Australia (who provided the material through which the plant reached Kew, and was described as a new species), reverted to the smaller flowered typical form of the variety alba. The large flowered form is possibly only developed under intensive cultivation.

KYLLINGIA BREVIFOLIA, Roth. (Cyperaceae). Det. by G. Kukenthal.

Port Jackson, R. Siegert, 1884. Probably introduced.

LINARIA VULGARIS, L. (Scrophularineae). "Common Toad Flax."

Bloomfield, Feb., 1910, J. P. McLennan.

Apparently a garden escape hardly yet sufficiently established to be considered naturalised. The plant is native to Europe and Russian Asia, but has spread with crops to various parts of the world. Hence it is likely to appear in other localities in Victoria, and to persist when once established. Its yellow clusters of flowers are rather handsome. Though without economic value it does not appear to be aggressively

injurious. It was formerly used as a diuretic and laxative purgative. No animal will eat it, and as bedding in cow-stalls it helps to keep away vermin. Milk boiled with it will kill flies, so that it is apparently somewhat poisonous.

Linaria Elatine, Mill. The Hairy Toad Flax is a naturalised alien, and is often sent in as a supposed poison plant. It has not hitherto been shown to be poisonous. Bourquelot (Journ. Pharm. et Chim., 6 ser., 30, 1909, p. 385) has, however, shown that another European common roadside weed (*Linaria striata*), generally avoided by sheep, contains a cyanogenetic glucoside which, under the action of emulsin, yields hydrocyanic acid, benzoicaldehyde, and a reducing sugar. *L. Elatine* and *L. striata*, both appear to have a similar bitter taste and hence it is possible that both may be capable of producing poisonous effects.

Melaleuca neglecta, Ewart and Wood, n. sp. (Myrtaceae).

Shrub not over 8 feet in height, stem two or three inches in diameter at the base, bark rough and corky, slightly furrowed. Leaves 2 to 3 lines in length, ovate-lanceolate, stalked, tuberculate, semi-terete, flat on top, scattered and numerous. Flowers small whitish, numerous in lateral spikes; axis grows through the inflorescence before flowering is over. Calyx tube campanulate, lobes 5 triangular nearly as long as the tube. Corolla white, petals 5 deflexed, clawed, very thin and delicate. Stamens in 5 bundles, opposite petals, 7 to 9 in each bundle. Ovary hairy on top, single style and stigma, 3-celled, ovules erect, placenta bifid.

Remarks. This plant differs from *Melaleuca pustulata* in that its bark is not smooth and papery. The flowers of *Melaleuca pustutata* are in small terminal leafy heads, and the rhachis as a rule does not grow out until flowering is over. The flowers differ in the two plants in external appearance, the calyx lobes of *M. pustulata* are longer than broad, and more pointed. The petals also differ, the petal of *M. pustulata* being longer, more ovate, and claw is shorter. The plant is of no value as timber, owing to its small height. Its non-recognition as a distinct species has been due to its being

confused with *M. pustulata.* Hitherto it is only known from Victorian localities. Attention to the possibility of this plant proving to be a new species was first drawn by Mr. St. Eloy D'Alton. Hence its popular name might be D'Alton's Melaleuca.

Habitat, near Dimboola. *Collector*, St. Eloy D'Alton. *Date*, Noveinber, 1909.

PHYSALIS VISCOSA, L. (Solanaceae). "Ground Cherry."

Railway Reserve, N. Melbourne; J. R. Tovey and C. French, jnr., March, 1909, and April, 1910.

The plant is a native of the Southern Regions of North America, where it is common, usually on light or sandy soils near the coast. It is a perennial with somewhat creeping subterranean shoots, and hence would be difficult to eradicate when once established. It has apparently been introduced with ballast, and has not yet appeared from any other locality. The berries do not appear to ripen readily in this climate. The plant is easily recognised by its short pubescence of stellate or forked hairs.

PRASOPHYLLUM INTRICATUM, C. Stuart.

New England, Timbarra (New South Wales), C. Stuart.

This Tasmanian and Victorian plant is only recorded previously from a single locality in New South Wales. (Blue Mountains, Fitzgerald's Australian Orchids). The present specimen was wrongly named P. Archeri.

PULTENAEA VILLIFERA, Sieb.

East Gippsland, November, 1896, H. B. Williamson.

This plant is given in Mueller's key as from the North West only of Victoria. In addition to the present locality it also occurs in the South and South-West (Macedon, Geelong, Portland).

SAGITTARIA SAGITTAEFOLIA, L. "Arrowhead."

A semi-aquatic plant, native of Europe and temperate Asia, growing in swamps, shallow ponds and streams. It is now

naturalised in swamps on the Goulburn River, near Nagambie. Possibly it was planted in the first instance, and has since run wild. It was formerly used as a cooling and wound healing specific, but has now no reputed medicinal value. The root contains starch like that of arrowroot, and is used as food by the Kalmucks. The leaves do not appear to be injurious, and though hardly to be classed as good fodder are apparently eaten by stock when better feed is unavailable.

C. French, jnr., 1910.

Senecio spathulatus, A. Rich. (Compositae). "Spoon-leaved Groundsel."

Mt. Singapore, Wilson's Promontory, J. A. Leach, May, 1910.

New to the National Park, and only recorded from one other locality in Victoria (the Snowy River).

Solanum coactiliferum, J. M. Black. (Solanaceae).

Trans. Royal Soc. of S. Australia, vol. xxxiii., p. 224, 1909.

This may prove to be a local form of *S. esuriale*, Lindl., with four partite flowers developed as an abnormality. The narrow incurved leaves, tomentose covering, single flowers, and prickles also occur in *S. esuriale*, the prickles being especially well developed in desert specimens, but usually more slender than in the type specimen of *S. coactiliferum*. Both plants vary, however, in regard to the prickles.

Solanum heterandrum, Parsh. "Pineushion Nightshade."

Swampy land near Tocumwal, New South Wales; C. B. Palmer. May, 1910.

This North American weed is already recorded as a naturalised alien in the North West and North of Victoria, but is apparently unrecorded for New South Wales.

Verbesina encelioides, Benth and Hook. (Compositae). "Crownbeard."

Euston, A. G. Briggs, March, 1910; Kerang, J. Moore, June, 1900; Junction of the Darling and Murray, R. Holding, 1891; L. Binance, C. Moore, April, 1888.

The two first localities are Victorian, the two last are in New South Wales. The plant is now permanently established as a naturalised alien in Victoria and New South Wales, and is very generally reported as being injurious or poisonous to stock, especially sheep. It is a native of North and South America now widely diffused over the warmer regions of the globe, and even occurring in gardens. No species of the genus is known to be poisonous, so that any injurious action the plant may have is probably a mechanical one.

Zostera marina, L.

This is mentioned in the "Weeds and Poison Plants of Victoria," p. 91, on the strength of a specimen from Williamson as new to Victoria, possibly introduced. On further investigation I find that the specimens on which the *Zostera nana* of Bentham's Flora are based are mainly *Zostera marina*, being distinguished by their large size, broader leaves, more numerous veins, and seeds with longitudinal ridges or veins, instead of quite smooth as in *Z. nana*.

Zostera marina is found on flat, sandy or muddy shores around the whole coast of Australia, including Tasmania.

Zostera nana, F. K. Mertens.

Has apparently an equally wide range, but is less common. By some it has been considered a variety only of *Z. marina*, but the species can readily be distinguished by the characters given above. The Victorian Flora therefore includes three species of Zostera, *Z. marina*; *Z. nana* and *Z. tasmanica*. The last named is intermediate in size between *Z. marina* and *Z. nana*, and is distinguished from the latter by its pale seeds, broader floral sheaths and bractless flowers.

EXPLANATION OF PLATES.

Plate XII.—Halgania erecta.

Fig. 1.—Plant of Halgania erecta Ewart and Rees (about natural size).

2.—Single young leaf showing hairs (enlarged).

Fig. 3.—Single old leaf showing hairs (enlarged).
4.—Single hair (much enlarged).
5.—Flower (enlarged).
6.—Anthers with processes (enlarged).

Plate XIII.

Fig. 1.—Branch of Melaleuca neglecta.
2.—Flower of Melaleuca neglecta.
3.—Flower of Melaleuca pustalate.
4.—Petal of Melaleuca neglecta.
5.—Petal of Melaleuca pustulata.